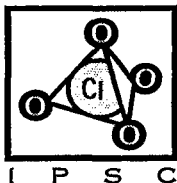


DRAFT



Perchlorate Stakeholders Forum

Sponsored by the Interagency Perchlorate Steering Committee

May 19-21, 1998 (Henderson, NV)

Session Notes

*Note: This document is a compilation of notes taken during the facilitated discussions at the perchlorate stakeholders forum, and question forms submitted by forum participants. The session notes from all sessions were reviewed by participants on the third day of the forum and additions were made by participants on each session topic.

Session 1 - Background

- Future involvement and communication
 - Information collection rule does not include perchlorate
 - What is being done to involve other regions, Air Force?
- Work with states to alert public/action; also water providers – consider monitoring
 - Web site – keeping up to date (USEPA-OW responsibility)
 - Informing other states (35) –information sent to EPA Regional Administrators, Water, Superfund and HW Division Directors by R9 Regional Administrator
 - recommend monitoring of wells
 - did not send directly to states in other regions
- EPA studies along Colorado River – resources needed; need to establish quality program for perchlorate
- Need to identify analytical laboratories which can analyze for perchlorate
- Need information sharing/coordination for Colorado River studies – past/future reports
- How is the IPSC Steering Committee going to get buy-in of science/toxicology/public (peer review) so that it is defensible to the public?
- Who is in charge? Lead agency and contacts?
- The RfD is only the first step:
 - how many wells are impacted?
 - what can drinking water officials do?
 - need testing methods?
- Funding sources?
- Treatment/research program
- Maintain integrated approach
 - FACA? (new? supplement existing?)
 - non-FACA group
 - Web page
- Groundwater sources
- Money available? Government or private
- Treating will be more difficult; what assistance available to treat?

- There are no resources for study; EPA is working towards an appropriations report to Congress, which will be posted on the Web when ready
- Re-injecting groundwater and then finding later problems
- Need lower detection limits
- Will FY99 appropriations include perchlorate?
- Need a FACA or become part of NEJAC or children's health FACA
 - FACA could support appropriations request
- Will a budget request come from this meeting?
- Will the concerns raised here be included in report to Congress?
 - will concerns raised in earlier meeting be reflected?
 - *each of the areas identified here are reflected in report
- Need public support of process - stakeholders need to be involved despite fast pace
- Is perchlorate only an issue in California and the southwest?
 - a contact person is needed in every region
 - *perchlorate will be an agenda topic for EPA regional risk assessors meeting
 - *perchlorate will be an agenda topic for EPA Waste Division Directors meeting
 - *conference call with risk assessors
 - *drinking water branch chief letter to counterparts;
 - also to Superfund Division Directors
 - *perchlorate is an issue in EPA Region 9, 2, and 6
 - limited recognition/study in other regions
- What about money for toxicological studies for Tribes?
- Are the Bureau of Indian Affairs, Indian Health Service, Las Vegas Tribes attending this forum?
- There are other chemicals in the Colorado River, such as chromium, which need to be addressed
- To date, Region 9 and HQ Tribal contacts have been more involved on perchlorate issues
- Tribal staffing is also needed; Tribes could form an alliance
- Mexico needs to be informed regarding perchlorate issues
 - *EPA Region 9 Water Division will look into more monitoring at the border and possibilities for more work with the Tribes
- USGS routinely monitors (NASQN) throughout the United States; perchlorate not included in this monitoring program
 - in a Santa Ana River study, could focus on perchlorate and Ray Hoffman can be a contact
- Have other nations been contacted?
 - *Kevin Mayer has received inquiries from European countries
 - *perchlorate is being sent to other countries
 - *International Society for Environmental Assessment's publication could be useful for distribution of information on perchlorate issues
 - EPA would rather tap into existing publications instead of creating its own publication in an effort to save resources

- Regarding funding questions: need money, and need it fast to continue studies
 - but the federal process can be slow - how much and for what? how to get it?
 - alert Congress to need (EPA and Air Force cannot do this)
 - see example of \$2 million for treatment research
 - are there state and other sources of funding available?
- -perchlorate not currently on RCRA, CERCLA, SDWA lists

Question Forms

Q. (For Kevin Mayer) Have other chloro-oxyanions (chlorite, chlorate etc.) been looked for? Detected?

Q. The focus on ammonium perchlorate is understandable given the large volumes produced. However, what about industrial, medical, and analytical chemistry dischargers of perchloric acid and other perchlorates?

Q. Can we have a list of steering committee members? Is there any contact with other nations on the issue?

Session 2 - Health Effects/Toxicity

- Copies of handouts or on the Web site – speaker handouts on Thursday if possible or speaker handouts will be sent to forum participants
- -Does EPA exchange information among offices/regions on perchlorate?
 - Conference calls monthly for IPSC – others may participate if they desire.
 - All IPSC calls/meetings open to members of the public.
 - IPSC agency representatives have been invited to speak at a number of different types of meetings. A presentation on perchlorate issues will be part of the agenda at the USEPA Risk Assessors Meeting in June 1998
- Will floor comments be included in session notes being prepared for this meeting?
 - Prepared comments should be distributed
 - Can a due date be identified for statements from participants to be included in summary
 - *This item was discussed at 5/21 Steering Committee meeting. Participants did distribute materials at the forum and also received copies of attendance list in case they want to distribute future materials to all forum participants.
- Good science is key
- Are there opportunities for human studies?
- Information submitted should be part of official record; too tedious to send it out to all
- It takes one year to develop and publish a health advisory
- The process is good; next phase will be MCL
- Implementors need to realize perchlorate only one issue
- Need to identify control technologies with cost information; costs can vary depending on situation (eg. small systems)

- California may move ahead
- Exposure v. Dose
- Monkey studies could help at low exposure levels (ppb)
- ADEM studies should address

Question forms

Q. After the toxicity studies are completed, what is the time schedule for the development of water quality standards (MCLs)? When will be getting an indication of what the water quality standards will be?

Session 3 - Ecological Impacts/Transport and Transformation

- Are there locations where NDMA has been detected in drinking water wells with perchlorate?
- Is there uptake of perchlorate to bone marrow?
- What are the pH effects of perchlorate in the human gut, mother/infant guts (breast milk)?
- Is excavation of the source areas a possibility?
 - Is it possible to put some kind of rapid interception system in place?
 - slurry walls at source
 - pump/treat system
- Use of radio-labeled perchlorate in studies to resolve analytical difficulties
- Ammonium transformation in environment not verified; pH dependent phenomenon (mass balance needed)
- What about saline or brackish environmental toxicity?
- Fate and transport difference between various perchlorate compounds (NH_4^+ , K^+ , Na^+ ...)
- Soil material effects on fate and transport
- Vadose zone, capillary fringe
- Toxicology – immunotoxicology not mutually exclusive
- Green house conditions different from field crop irrigation
- Lettuce assay method development – tissue concentration measurement
- Greatest exposure to aquatic organisms
- Testing phytoplankton and zooplankton as a major link in food chain-is this part of the current studies?
- Razorback sucker (endangered fish) exposed in Las Vegas Bay; have observed razorback suckers with lesions-the source of this is not identified.
- Migratory birds use Lake Mead – acute and chronic studies needed reproductive endpoints
- Will there be a peer review process for ecological risk assessment?
 - *Yes.
- Will raw data be released?
 - *No - the raw data will be available with assessment with individual animal data.

Question forms

Q. Are there fate and transport differences between ammonium perchlorate and other perchlorate compounds?

Q. Does the soil material make a difference - i.e. sands, silts, clays?

Q. How does it interact with the environment/soil column/vadose zone and capillary fringe? Do organics, metals, and other constituents/compounds (binders or others) make a difference? Data available?

Q. Will any consideration be given to saline or brackish environmental toxicity?

Session 4 - Analytical Methods

- We need to conduct analysis for perchlorate in soil (water extraction)
- Need an approved method
 - EPA published method
 - Drinking water office pushing to get method published - critical
- How are labs "certified" to use published method?
- If using the California method, will this data be disallowed?
 - *Data collected by this method is good for now
- Under Superfund, is the California method ok?
 - *California method is the best analytical method available now.
- Moving toward performance based methods
 - Specify experienced analysts
- Need method to measure perchlorate in urine
- Looking at analytical methods from around the country

Question forms

Q. Is the DHS or Dionex AS-11 method an "approved EPA method"?

Q. What is the schedule, if any, for EPA to establish a perchlorate analytic method for was as an EPA-approved method? What, if any, are the impediments? Can the schedule be speeded up?

Q. Do you have any recommendations for measuring ClO_4^- in soil at the low ppb range?

Q. What level of precision and accuracy should be expected on low-level water samples (eg. 4-12 ppb)?

Q. The California DHS methodology requires sample collection in plastic and a 28-day hold time. Is there any data to support this? (Implications for analysis of archived samples.)

Q. Any recommendations for ultra-trace NDMA analysis (<30 ppt)?

Q. What type of standard do you use? (ammonium, potassium, sodium base)

Q. Does your sample preparation include filtration? If so, what type of filter do you use and do you have any control data for ClO_4^- recovery?

Q. Would the iron in hemoglobin enhance reduction of perchlorate in the same manner as the aluminum and iron oxide in solid rocket fuel?

Q. Howard said that they tested humic acid for coelution with perchlorate by IC. What was the source (brand) of humic acid? How can you be sure that some fulvate or humate will not coelute when fulvates and humates are classes of compounds rather than specific chemical entities?

Q. Explain filtration, holding time, and "container type" issues for perchlorate.

Q. How does "reporting level" compare to standard EPA terms EQL from SW-846 and 40 CFR Part 13b terms? Why not just use standard EPA terms?

Q. The Dionex evaluation of interferences (SO_4 , nitrates, chlorides, bromides, etc.) Used laboratory mixtures. Has an evaluation been done on actual groundwater sample which have high TDS, sulfate, nitrates, chlorides, bromide and known perchlorate? And has Dionex seen interferences in this situation?

Q. What about the chemical NDMA - has it been detected in groundwater where perchlorate has been found?

Q. How long did it take you to develop your method after you received the initial request tests for perchlorate?

Q. We realize that the subcommittee is doing a lot of work to validate/help develop methods - most of this is on a volunteer work - no \$ is associated with this. What is EPA's commitment? How is EPA's lab helping? EPA-Cincinnati has a lab with nice Ion chromatographs - are they contributing to method development and interference studies?

Session 5 - Treatment Technology

- Trying to oxidize perchlorate?
- MWD tested ozone treatment and found it was of little value
- Need to find vulnerable water agencies
- What was the regenerant for ion exchange?
- Will there be a press release?
- Is perchlorate considered hazardous?

- How many workers are exposed?
- Will ion-exchange remove carbonate/bicarbonate?
- 20-year operating life of system (probably)
- Capital costs (10-year) and operating costs can vary considerably
- Every situation is different - this impacts costs
- Involve regional boards in California
- Will these site-specific costs be considered? Also downstream costs?
- States have primacy, can vary
- Office of Drinking Water has a cost team, will consider variations
- Disposal of reverse osmosis wastes
 - For small systems output maybe slow enough to not require special treatment
- What do we know about perchlorate generation in wastewater streams?
 - *This is probably not an over-riding concern - suggest sampling of influent/effluent
- Suggestion for a follow-up meeting on perchlorate issues for February 1999

Question forms

Q. With ion exchange, what is the regenerant? What concentration? How will it be disposed of? (If bio, any data to suggest that it is feasible?)

Q. Re: Reverse osmosis for removal of ClO_4^- . What constraints do we foresee with disposal of R.O. waste effluent? Given the availability of R.O. to the public...is there a concern?

Session 6 - Summary & Next Steps

- Web page
- Web page with links to other sites, such as Air Force, NASA
 - Include discussion papers, meeting summary, session topics as categories, speaker list, summary of meeting for public, electronic list serve?
 - Should be understandable to public
- Invite perchlorate committee to participate in the upcoming Indigenous Environmental Network conference this fall, contact is Tom Goldtooth, (218) 751-4967
- NEJAC meet early June, bottled water not available in EJ communities - how will they be affected by perchlorate?
- EPA lab in Cincinnati not involved now
- Need contact list
- Keep sending suggestions for additional community involvement to Catherine McCracken
- Formats for information: simple executive summaries to full-detailed reports
- Full (.pdf format) copies of study reports

Question forms

Q. Ammonium perchlorate is still being manufactured. (I sat next to manufacturers on the first day.) Are any studies planned on perchlorate workers?

Q. Treatment - what is the benchmark in evaluating cost? Per acre foot, reduction, etc.? Are capital costs prorated over 10 years, 20 years?

Q. There has been mention of outreach to other regions and states. Question - how about other nations? In connection with perchlorate issues they have encountered?

Additional questions (session not noted on question form)

Q. Does USEPA plan to do a news release on this meeting at its conclusion?